Cedar River Instream Flow Commission

Draft Minutes

SPU Water Quality Lab

October 3, 2012

Organizations/Members Present:

- Seattle Public Utilities -- Tom Fox, Rand Little
- Liz Ablow -- Seattle City Light
- Muckleshoot Indian Tribe -- Holly Coccoli
- NOAA Fisheries -- Randy McIntosh, Matt Longenbaugh
- US Army Corps of Engineers – Lynne Melder, Larry Schick
- Washington Department of Ecology -- Buck Smith
- Washington Department of Fish and Wildlife -- Peggy Miller

I. Call to Order: Tom called the meeting to order at 9:40 AM.

II. Approval of Agenda: Approved as presented.

III. Approval of Draft Minutes: Draft minutes from the September 5 meeting were approved as presented and finalized.

IV. News and Notes: Tom mentioned that People for Puget Sound recently closed its doors. This past summer, the Governor appointed Colonel Anthony Wright, former district engineer and commander of U.S. Army Corps of Engineers Seattle District, to be the new Executive Director of the Puget Sound Partnership

V. Real Time Water Management:

Hydrologic Conditions*:* Tom presented the hydrologic update package and discussed current hydrologic conditions. The Cedar received no rainfall in August and only about 0.6 inches during one small event in September. Conditions are quite dry. The 8-week moving average inflow to Chester Morse Reservoir (as measured at gage 12115000) is below median levels. Chester Morse Lake is relatively high due to last spring's abundant snow pack, wet conditions during the late spring and early summer and conservative reservoir management.

High reservoir levels led to relatively high aquifer return flows to the river between Cedar Falls and Landsburg, which, in turn, helped support augmented flows in the lower river during August and the first half of September. Since mid-September, flows have been stepped up according to the normal early fall supplemental flow schedule ("flashboard flows"). There have been no downramping exceedences during the past month. Regulated flows as measured at Renton have been near or above simulated unregulated flows since late August. Holly suggested that water year 2012 was a good-looking year for flows with no severe floods and augmented flows during spring and summer for emigrating and rearing juvenile fish.

As the effects of snowmelt withered and dry conditions began developing in late July, natural inflows began to recede and are now similar to the levels experienced in 2002, the last year that the Cedar experienced a very dry fall. Buck mentioned that the USGS gage on the Rex River above Chester Morse Lake has been reporting record low stream flow levels.

Larry reported that the current "Rex Blocking" weather pattern is expected to persist for at least the next week resulting in continued high pressure over the region and dry weather. He pointed out that dryness during the early part of the fall is not all that unusual. However, continued dryness into November is quite rare.

Water consumption for the last two weeks was slightly above the amount used during this same period last year, and similar to the 1999 – 2008 average levels.

To implement the High Normal Fall Flow level, three criteria are met; one reservoir elevation criteria, as well as two reservoir inflow level criteria (the 15-day and 30-day moving average mean daily flow at USGS gage 12115000). Although the reservoir elevation is relatively high and well above the criteria for high normal flows, Tom presented graphs indicating that the 15-day moving average inflow is projected to be below the criteria level on October 8. The 30-day moving average inflow is projected to fall below criteria levels shortly thereafter. If dry conditions persist, the pump plants could be needed by early December.

Tom provided a description of the current situation with the Chester Morse Lake Temporary Pump Plant. For a number of reasons, SPU does not currently have reliable pumping facilities. SPU has been working for the last couple of months to address a number of deficiencies with the system and prepare it for potential use this fall. Most recently, one of the anchoring system "spuds" for one of the barges broke, damaging some equipment and nearly causing very serious injury to those working on the barge. A spud is a long, 6000 lb steel pile used to stabilize the position of the barges when at anchor. The two barges have eight spuds, one on each corner. They extend in a vertical orientation

high above and below the barge. The spud that broke, fractured at deck level and fell onto the barge, onto an adjacent skiff and then into the water. Fortunately, no one was in the path of the falling spud at the time. All eight spuds must now be replaced in addition to a number of other repairs and retrofits before the floating pump barges can become operational. Target date for completion of all repairs in December 1. This is a very aggressive schedule.

Because of the unavailability of the pump barges, the system is being managed to conserve storage in Chester Morse Lake. Use of the South Fork Tolt Reservoir is being maximized as much as possible, pool split has been initiated at the overflow dike in Chester Morse Lake and the Highline Well Fields are being prepared for use.

Given the current, relatively dry inflow conditions and the condition of the floating pump plants, Tom said that SPU is unwilling to provide High Normal Fall Flows on October 8. Even though the reservoir is in a good position and inflows will be just below the criteria, it is too great a risk to provide more than the Low Normal Fall Flows. If hydrologic conditions improve, or certainty about the reliability of the pump plants increases substantially, it may be possible to provide High Normal Flows later this fall.

Holly expressed regret that, with a good fish year such as this, we are unable to provide the benefits of High Normal flows. Higher flows would help protect sockeye and Chinook that are currently spawning throughout the river. She asked if it would be possible to follow a pattern similar to 2002 in which High Normal flows were provided for the first two weeks of the period, and then lowered to Low Normal when dry conditions continued. If this was not possible she asked if an intermediate flow level between Low and High Normal could be provided. Tom replied that, given the risks, no water above the Low Normal levels could be provided unless conditions improved.

Lynne suggested that perhaps the IFC could provide input to SPU on their view of the importance of remedying the current situation in Chester Morse Lake. Tom said that that design and alternatives analyses have been ongoing for a number of years. He expects a proposed solution to be coming forward and entering into the SEPA process soon. He suggested that the SEPA process would perhaps be the appropriate time for input from members of the IFC.

Tom indicated that use of the floating pump plants involves important safety considerations which are yet to be fully addressed. Holly asked about the total capital costs of the previously discussed land-based pumping operations. Tom replied that it was approximately $70 million, but that life-cycle cost analyses indicate the total costs may compare favorably with other alternatives. Tom reinforced the need to keep the IFC up to date on the CML dead storage pumping issue as it develops.

***Weather update**:* Larry provided a weather update. With the current 74-day streak of dry weather, SEATAC recorded the driest August 1 through September 30 period on record. The late summer and early fall are often fairly dry here. The region has experienced other extended dry periods. In 2003, we experienced a 5-month dry period followed by near record rainfall in October. The weather can switch "fast and big" in October. October 20 is about the typical time that weather transitions in earnest to wetter patterns. If dryness continues beyond October 20, then water management concerns rise significantly. The persistence of a Rex Blocking pattern, which is diverting moisture and storms north into Alaska, is the primary driver of the current persistent dry weather. Seward, Alaska received over 30 inches of rainfall in September. The skill with which the models can accurately forecast weather in the 7 to 10-day time frame seems better during stable patterns such as the current Rex Blocking configuration.

Larry reported that a relatively weak El Nino pattern appears to be developing in the equatorial Pacific. El Nino patterns do not typically transmit a strong signal to the Pacific Northwest. Larry noted that the flood of record on the Green River occurred during the El Nino year of 1977. Water supply conditions in the low elevation, central Cascades basins are perhaps slightly more vulnerable due to the higher potential for elevated snow levels during El Nino events. Larry said that operators on the Green River are not particularly concerned yet. Holly pointed that folks working on the Green have, however, started to discuss the possibility of reducing releases from Howard Hanson Reservoir.

Tom mentioned that raised wild fire concerns and associated restrictions on activities in the Municipal Watershed could impact the ongoing efforts to repair and ready the pump plants in Chester Morse Lake.

Fish update: Holly reported that fish counts at the locks are complete. Around 16,000 adult Chinook and approximately 25,000 adult coho passed upstream through the locks facilities this year. So far, the number of adult sockeye observed in the Cedar is, as expected, significantly greater than last year. The Tribe was able to harvest 2000 or 3000 Chinook in Lake Sammamish and will also have a chance to harvest some coho. Rand distributed Karl's most recent summary update of Chinook redd counts in the mainstem Cedar. Through October 1, surveyors have observed 108 Chinook redds. Many of the observed fish are somewhat small, indicating a higher than usual percentage of 3-year fish in this year's return.

Lake Washington and the Locks: Lynne reported that the elevation of Lake Washington is gradually declining to the normal target winter level. The current elevation is on target at 20.3 feet. The juvenile fish passage flumes were removed on September 17 in preparation for the winter high flow

management season. For the first week after the flumes were removed, releases other than for lockages and the fish ladder were restricted. Water quality observation indicated that the saltwater wedge was expanding and moving further into Lake Union. In response, Corps operators opened one of the spillway gates at the locks approximately 100 cfs and this appears to have stopped the expansion of the saltwater wedge. It looks like lake elevation and salinity are in good shape, and the Corps is currently not expecting significant water management challenges this fall.

As Lynne mentioned previously, installation of the downstream fish passage flumes ("smolt flumes") at the locks is a challenge. Due in part to increasing concerns for safety and the Corps' new safety regulations for crane operations, there is only one certified crane available in the Northwest for installing and removing the smolt flumes. In the past, this crane has not always been available when needed by the Corps to install and remove the flumes. There is a substantial amount of uncertainty about the Corps' ability to install the flumes as usual during early to mid- April. They are beginning to explore alternatives.

Holly asked what was planned for the spring of 2013. Lynne replied that the one available crane has been scheduled to install the flumes in mid-April. If, like this year, the crane becomes unavailable, the backup plan is to use the same floating barge approach for installation that was used in 2012.

VI. Supplemental Studies

Accretion Flow Study: The group briefly discussed the presentation at last month's meeting and the tech memo provided by SPU. All agreed that the presented information was sufficient to address the requirements of Section E.2 of the Instream Flow Agreement (IFA) and all remaining funds for this study are available for reallocation as recommended by the IFC and, if necessary, as approved by the Parties to the IFA.

Peak Flow Study: Rand distributed an updated version of the Peak Flow Phase II outline distributed at the last meeting. The updated version included a preliminary prioritization of topics and prioritization rationale for the suggested top 4 priority topics. The work coming to completion with USGS in Phase I has been informative, has yielded several key insights and helped inform future investigations.

Several potentially important conclusions may be drawn from the work: 1) the actual flow at which redd scour begins appears to be slightly higher than the current target instream flow management criteria of 1800 cfs, however, there is some degree of uncertainty; 2) redd scour appears to be most closely linked with peak flow magnitude and flow duration appears to be of less importance; and 3) the artificially confined nature of much of the river has a substantial

impact on the ability of peak flows to create and maintain favorable habitat conditions; there are three, relatively short, unconfined sections in the lower river with a significantly greater channel width that appear to have the capability to more fully express proper geomorphic function.

In response to conclusions 1 and 2, the IFC has elected to raise the redd scour threshold criteria to 2200 cfs and to sponsor additional field studies to verify that no significant redd scour is initiated at this flow level. Conclusion 3 may be more fully explored if the IFC elects to pursue study topic 3.

The IFC discussed the suggested ranking of the eight previously identified Peak Flow study topics for additional investigations. The goal would be to pursue the top three of four topics simultaneously in the coming years. There was general consensus on the rankings of topics 1 and 2; redd scour investigations and off-channel areas. Holly expressed greater interest in the relationship between flows and the connectivity of existing off-channel areas rather than the relation between peak flows and the creation and maintenance of off channel areas. Rand suggested that the group would need to come up with a working definition of off-channel areas and suggested that this definition could be tied to the function of juvenile Chinook rearing.

Holly also suggested moving topic 5 (spawning gravel) above topic 4 (LWD) primarily because of the rivers limited capacity to recruit wood in its present condition. She believes that, in particular, topic 4b (relationship between flow and lateral distribution of spawning gravel) may be of significant interest. The group concurred with this suggestion.

There was much discussion of topic 3, the integrated restoration/study reach concept to explore the relationship between peak flow and the creation and maintenance of a natural, multi-threaded channel with stable islands (anastomozing channel). The group expressed interest in the topic and saw its potential importance for the river. There is still a fair amount of uncertainty about scope of the project and the role of the IFC in that scope. Holly recommended that the IFC continue explore topic 3 in a stepwise manner. Tom suggested that topic 3 could be viewed in the constext of developing a field lab to test a number of high priority hypotheses.

Rand distributed draft scope outlines for topics 1, 2 and 3. The group agreed to review the outlines and continue the discussion at the November meeting.

VII. November 7th IFC Meeting:

1) Phase II Peak Flow Study scoping
2) Fall High/Low Normal Flow update

VIII. Meeting adjourned at 1:00 PM